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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/462,283	03/29/2000	HANS WILFRIED PETER KOOPS	2345/108	4889

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NEW YORK, NY 10004

EXAMINER
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AHMED, SHAMIM

ART UNIT	PAPER NUMBER
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1765

19

DATE MAILED: 02/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/462,283

Applicant(s)

KOOPS, HANS WILFRIED PETER

Examiner

Shamim Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Prosecution Application*

1. The request filed on 12/02/02 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/462,283 is acceptable and a CPA has been established. An action on the CPA follows.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7,9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al (XP-002058725) in view of Eguchi et al (Japanese Journal of Applied Physics).

Brenner et al describe a process to form an optoelectronic device, wherein a polymer is exposed by using an etching mask and then the unexposed regions are filled with monomers by gas-phase diffusion process (see page 159 and 161-162).

Brenner et al fail to teach the monomer is organometallic compound.

However, Eguchi et al teach a fabrication process of an optical waveguide with gradient index polymer, wherein monomers of organometallic compound with a lower refractive index are diffused into a gel containing substrate for low optical losses at the waveguide connection (page 2232).

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Therefore, it would have been obvious to one having ordinary skill in the art to employ Eguchi et al's teaching into Brenner et al's process for reducing the optical loss of the optical waveguide as taught by Eguchi et al.

Modified Brenner et al do not explicitly teach that the optical property of the optoelectronic component is configured to be selectively changed as a function of a type of monomeric organometallic compound and as a function of a temperature and an application time.

However, it would have been obvious that the modified Brenner's optical component would be capable of being selectively changed as a function of temperature and time because the monomeric organometallic compound would change the physical properties during a change of temperature and application time because the optical component of the modified Brenner et al is similar as the claimed invention and expected to have the same result.

As to claim 11, Eguchi et al teach that the filled monomers having a lower refractive index (see the paragraph No.1 at page 2232).

It would have been obvious to have the same refractive index value because all the process constituents are similar to the instant invention.

As to claim 13, since the light is passing through the polymer pattern along with the monomers, it would have been obvious that the optical properties are influenced by varying the injected light.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al (XP-002058725) in view of Eguchi et al (Japanese Journal of Applied Physics) as

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applied to claims 7,9-14 above, and further in view of Vollenbroek et al (USP 4,704,347).

As to claim 8, modified Brenner et al discussed above in the paragraph 3 and also disclose that the polymer resist layer is polymethyl methacrylate (PMMA) (see the abstract at page 159).

Modified Brenner et al fail to disclose that the patternable polymer layer is composed of novolak.

However, Vollenbroek et al teach that photoresist layer composed of novolak has an advantage over PMMA layer, such as novolak has a considerable higher resistance to etching plasmas than the PMMA (col.2, lines 47-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of claimed invention to employ Vollenbroek et al's teaching into the modified Brenner et al's method by replacing PMMA resist with novolak resist because novolak has considerably higher resistance to etching plasmas than PMMA as taught by Vollenbroek et al.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al (XP-002058725) in view of Eguchi et al (Japanese Journal of Applied Physics) as applied to claims 7,9-11 and 13 above, and further in view of Khodja (5,943,464).

Modified Brenner et al discussed above in the paragraph 3 but fail to teach that the monomers are surrounded by electrical electrodes.

However, in a method of fabricating an opto-electronic device, Khodja teaches that electrodes are surrounded the chromophores of organic metallic compound in a

polymeric waveguide in order to apply an electric field (col.4, lines 61-col.5, line 5 and col.5, lines 63-67).

Therefore, it would have been obvious to one skilled in the art at the time claimed invention to combine Khodja's teaching into modified Brenner et al's process for efficiently applying electric field to the opto-electronic device as taught by Khodja.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al (XP-002058725) in view of Eguchi et al (Japanese Journal of Applied Physics) as applied to claims 7,9-11 and 13 above, and further in view of Akira (JP-402140749A).

Modified Brenner et al discussed above in the paragraph 3 but fail to teach that performing a silylation of the unexposed regions of the patternable polymer resist layer.

However, in a method of making pattern to a patternable polymer resist materials, Akira teaches that a silylated layer is formed on the unexposed portion of the polymer resist layer, which is then selectively removed with oxygen plasma in order to form fine patterns with prescribed dimensions (see the abstract).

Therefore, it would have been obvious to one skilled in the art at the time claimed invention to combine Akira's teaching into modified Brenner et al's process for forming fine patterns with prescribed dimensions as taught by Akira.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mimura et al (4,751,170) disclose a process wherein a silylation process is performed on a patternable polymer resist layer in order to form an active polymer layer and an inert or passive polymer layer.

***Response to Arguments***

Applicant's arguments filed 9/30/02 have been fully considered but they are not persuasive.

Applicant argues that Brenner does not teach or suggest a fabrication of active and passive polymer-based component for use in integrated optics using organometallic compounds nor does it describe filling the unexposed regions of at least one patternable resist layer with organometallic compounds where the optoelectronic component is capable of being selectively changed as a function of temperature and application time as in claim 7.

Applicant also argues that Eguchi does not cure the deficiencies of the Brenner reference.

This is not persuasive because Brenner teaches a fabrication process for an optoelectronic device, wherein a polymer material is exposed by an etching mask and then the unexposed region are filled with monomer (see the fabrication process at page 161 and figure 2.1).

Examiner agrees that Brenner does not teach the monomer is organometallic compound.

However, Eguchi et al teach that organometallic compound is used as monomer for low optical losses at the connection of an optical component (see the rejection).

Examiner states that the optoelectronic component includes exposed and unexposed region.

So, the component includes active and passive regions.

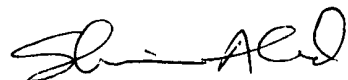
Examiner also states that applicant's argument is more specific than the claims because the active and passive polymer-based component is not claimed, which is preamble of the claim and that has given less patentable weight.

Examiner further indicates that the modified Brenner's optical component with Eguchi and Vollenbroek would be capable of being selectively changed as a function of temperature and time because the monomeric organometallic compound would change the physical properties during a change of temperature and application time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (703) 305-1929. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on (703) 308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Shamim Ahmed  
Examiner  
Art Unit 1765

SA  
January 29, 2003